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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,512	07/16/2003	Ji Hwan Keum	1670.1009	7512
49455 7590 12/27/2006 STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			EXAMINER BUEKER, RICHARD R	
			ART UNIT 1763	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		12/27/2006	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/619,512	<b>Applicant(s)</b> KEUM ET AL.	
	<b>Examiner</b> Richard Bueker	<b>Art Unit</b> 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply.**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 November 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5-13, 15-26 and 32-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-13, 15-26 and 32-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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Regarding the telephone interview of Sept. 20, 2006, the Examiner's interview summary accurately summarized the examiner's opinion regarding the Shen and Spahn references. As stated therein, "(t)he examiner indicated that Shen and Spahn do not by themselves disclose notches as illustrated in Fig. 2". This statement specifically excludes the embodiment of applicants' Fig. 4. The rejections based on Shen and Spahn are retained. The present claims have been amended to recite "borders of the openings being defined by notches in the outer edge of the surface". It is noted, however, that the limitation of claim 5, for example, still recites "wherein the one or more openings are continuously or discontinuously formed along the edge of the inner member". This claim 5 limitation is based on applicants' description of their Fig. 4 embodiment, which is described on page 6, lines 16-19 of their specification as follows:

The openings 31 can be continuously or discontinuously formed around the edge of the baffle board 32. For example, Fig. 4 shows that the openings 31 are linked together along the edge of the baffle board 32, and the fixing portion 33 extends downward from a bottom surface of the baffle board 32.

It is noted that if enough notches were removed from a board, a continuous opening as in Fig. 4 could be formed because the notches would be "linked together" as described in the above quoted passage. Therefore, despite the newly recited "defined by notches" limitation, it appears that applicants still intend the claims to include the Fig. 4 limitation. The Fig. 4 embodiment is obvious over the teachings of Shen or Spahn.

Claim 37 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one

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skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 37, the phrase "a baffle board parallel with the upper wall that is supported from a lower edge of the wall of the main body" was not included in the specification as originally filed. Applicants are respectfully requested to identify the portion of their specification which supports this new limitation.

Claims 1-3, 5-13, 15-20, 22-26, 32-34 and 37 are rejected under 35 U.S.C. 103(a) as obvious over Shen (2,793,609) taken in view of Dlouhy (German 2612424) and Spahn (6,237,529). Shen (Figs. 1-3) discloses a heating crucible for a deposition apparatus comprising a main body having a space for receiving a coating material to be vaporized and a nozzle for discharging vapor onto a substrate intended to be coated, and an inner member such as a baffle board which has one or more openings formed around its edge in the same manner as illustrated in applicants' Fig. 4, for example. The claim 1 limitation of "which receives an organic compound" is a recitation of intended use of the claimed apparatus and the present apparatus claims are not limited to use with any one particular type of coating material. The apparatus of Shen has an inherent capability of being used with an organic compound of the type recited in applicants' recitation of intended use. Regarding the limitation of the inner member being suspended from an upper edge of the main body, it would have been obvious to suspend the inner member of Shen in this manner because Dlouhy and Spahn teach that an inner member can successfully be supported in a crucible by suspending it from an upper edge of the main body of the crucible.

It is noted that applicants' specification discloses two different embodiments of their inner member, as shown in Figs. 2 and 4 of their specification. In the Fig. 2 embodiment, openings 31 extend into the outer edge of the baffle board 32. In the Fig. 4 embodiment, a single opening extends around the baffle board 32. At page 6, lines 16-19 of their specification, applicants describe their Fig. 4 as follows:

The openings 31 can be continuously or discontinuously formed around the edge of the baffle board 32. For example, Fig. 4 shows that the openings 31 are linked together along the edge of the baffle board 32, and the fixing portion 33 extends downward from a bottom surface of the baffle board 32.

This description teaches that the Fig. 4 baffle board 32 is formed by first forming openings 31 into the baffle board 32 and then linking the openings 31. In order to "link" the openings 31 further baffle board material must be removed in the those edge portions of the baffle board 32 that are located between the openings 31. According to page 6, lines 16-19 of the specification, the continuous opening 31 of Fig. 4 is "formed in" the surface of the baffle board 32, because it is formed by removing portions of the baffle board 32. Thus, it appears that applicants intend for their newly added limitation of "defined by notches" to include the Fig. 4 embodiment. Therefore, the claims as amended appear to read on the baffle board 7 of Fig. 1 of Shen and the baffle board 30 of Fig. 4 of Spahn. The openings around the baffle board 7 of Shen and around the baffle board 30 of Spahn are inherently capable of being formed by removing portions of the baffle board in the form of notches until the notches are linked to form a single

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continuous opening in a manner analogous to that indicated by applicants at page 6, lines 16-19 of their specification.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen (2,793,609) taken in view of Dlouhy (German 2612424) and Spahn (6,237,529) in view of Witzman (6,202,591). Witzman (Fig. 2B) teaches that a fixing portion that extends downward can successfully support a baffle. It would have been prima facie obvious to provide the baffle plate of Spahn with a fixing portion that extends downward because Witzman teaches that a vapor coating process can be successfully performed by supporting a baffle in that manner.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shen (2,793,609) taken in view of Dlouhy (German 2612424) and Spahn (6,237,529) for the reasons stated above, and taken in further view of Tiedje (5,944,903) (see Fig. 6). It would have been obvious to one skilled in the art to provide the vaporizing crucible of Shen with a temperature-sensing unit because Tiedje teaches that a vapor deposition process can desirably be more accurately controlled by measuring the crucible temperature.

Claims 1-3, 5-13, 15-20, 22-25 and 32-37 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Spahn (6,237,529). Spahn (Figs. 1-9) discloses a heating crucible for an organic EL deposition apparatus comprising a crucible having a main body having a space for receiving organic EL material to be vaporized, a nozzle orifice for directing vaporized organic EL material onto a substrate to be coated, and an inner baffle member installed

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within the main body having one or more openings formed around the edge of the inner baffle member. Also, Spahn's inner member is suspended from an upper edge of the main body as now claimed, because it is part of the cap which is suspended from an upper edge of the main body.

Regarding the newly added limitation of the claimed inner member "borders of the openings being defined by notches in the outer edge surface", the comments included above in the rejection based on Shen also apply to the rejection based on Spahn.

Regarding claims 35 and 36, Spahn (see Figs. 7 and 8, for example) discloses the use of a crucible having a cylindrical wall.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spahn (6,237,529) in view of Witzman (6,202,591). Witzman (Fig. 2B) teaches that a fixing portion that extends downward can successfully support a baffle. It would have been prima facie obvious to provide the baffle plate of Spahn with a fixing portion that extends downward because Witzman teaches that a vapor coating process can be successfully performed by supporting a baffle in that manner.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Spahn (6,237,529) taken in view of Van Slyke (2003/0101937) (paragraph 53). It would have been obvious to one skilled in the art to provide the vaporizing crucible of Spahn with a temperature-sensing unit because Van Slyke teaches that an OEL vapor deposition process can desirably be more accurately controlled by measuring the crucible temperature.

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Claims 1, 2, 5-12, 15-20, 22-26, 34 and 37 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mori (JP 61-156809). Mori discloses (see Figs. 2(a) and 2(b), for example) discloses a heating crucible for forming a deposition film in a vacuum deposition chamber. The crucible includes a jetting nozzle 3a defined in an upper wall of the crucible and an inner member 4. The inner member 4 includes a surface having an area facing the nozzle 3a, and is suspended from an upper edge 1b of the crucible. The inner member has one or more openings 5 that are formed in the surface having the area that faces the nozzle, and the edges of the openings are defined by the surface and an inner wall of the crucible. Regarding the limitation of "defined by notches", it is noted that if enough notches were removed from the board of Mori, then the board of Fig. 1b or 2b would result. Thus, Mori's board is in accordance with applicants' description of their Fig. 4 at page 6, lines 16-19 of the specification. Also, the upper wall of the crucible is perpendicular to a transmission direction of vaporized coating material that passes through the openings. The claim 1 limitation of "which receives an organic compound" is a recitation of intended use of the claimed apparatus and the present apparatus claims are not limited to use with any one particular type of coating material. The apparatus of Mori has an inherent capability of being used with an organic compound of the type recited in applicants' recitation of intended use.

Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (JP 61-156809) taken in view of Dlouhy (German 2612424) or Spahn (6,237,529). Regarding the limitation of the inner member comprising a fixing portion which extends



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upward from the baffle board and supports the baffle board, it would have been obvious to provide the baffle board of Mori with fixing portions that extend upward, because Dlouhy and Spahn teach that a baffle board can successfully be supported in a crucible by suspending it from an upper edge of the main body of the crucible using upwardly extending fixing members.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (JP 61-156809) in view of Tiedje (5,944,903) (see Fig. 6). It would have been obvious to one skilled in the art to provide the vaporizing crucible of Mori with a temperature-sensing unit because Tiedje teaches that a vapor deposition process can desirably be more accurately controlled by measuring the crucible temperature.

Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (JP 61-156809) in view of Spahn (6,237,529). Spahn discloses a method of producing an organic EL device by using a heating crucible having a nozzle 22 defined in an upper wall of the crucible and an inner member comprising a baffle board 30. Spahn teaches that the purpose of the baffle board is to prevent particulates or droplets of the material to be vaporized from reaching the nozzle outlet. It would have been obvious to use the crucible of Mori to form organic EL layers because Spahn teaches that organic EL layers can successfully be formed by vacuum evaporation from a crucible of the type disclosed by Mori.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (JP 61-156809) taken in view of Witzman (6,202,591). Witzman (Fig. 2B) teaches that a fixing portion that extends downward can successfully support a baffle. It would

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have been prima facie obvious to provide the baffle plate of Spahn with a fixing portion that extends downward because Witzman teaches that a vapor coating process can be successfully performed by supporting a baffle in that manner.

Claims 1, 2, 5-12, 15-20, 22-26, and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (JP 61-156809) taken in view of Mashita (JP 60-043480). Mashita (see Figs. 1-4) teaches the use of a baffle of the type used by Mori. Mori teaches that the baffle openings can be in the form of notches. If, for argument's sake, the claim limitation of "defined by notches" were interpreted as requiring the openings to actually be notches, it would have been obvious to one skilled in the art to modify the apparatus of Mori by providing it with a notched baffle of the type taught by Mashita, because Mashita teaches that his baffle successfully prevents the spitting phenomenon in a vaporizing crucible, which is the purpose of Mori's baffle. Also, it would have been obvious to use a cylindrical shaped crucible for the crucible of Mori as recited in claims 35 and 36, because Mashita teaches that a cylindrical shaped crucible can successfully be used to accomplish Mori's goal of vapor deposition.

Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (JP 61-156809) taken in view of Dlouhy (German 2612424) or Spahn (6,237,529), and taken in further view of Mashita (JP 60-043480). If, for argument's sake, the claim limitation of "defined by notches" were interpreted as requiring the openings to actually be notches, it would have been obvious to one skilled in the art to modify the apparatus of Mori by providing it with a notched baffle of the type taught by Mashita, because

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Mashita teaches that his baffle successfully prevents the spitting phenomenon in a vaporizing crucible, which is the purpose of Mori's baffle.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (JP 61-156809) in view of Tiedje (5,944,903) (see Fig. 6), and taken in further view of Mashita (JP 60-043480). If, for argument's sake, the claim limitation of "defined by notches" were interpreted as requiring the openings to actually be notches, it would have been obvious to one skilled in the art to modify the apparatus of Mori by providing it with a notched baffle of the type taught by Mashita, because Mashita teaches that his baffle successfully prevents the spitting phenomenon in a vaporizing crucible, which is the purpose of Mori's baffle.

Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (JP 61-156809) taken in view of Mashita (JP 60-043480) and in further view of Spahn (6,237,529). Spahn discloses a method of producing an organic EL device by using a heating crucible having a nozzle 22 defined in an upper wall of the crucible and an inner member comprising a baffle board 30. Spahn teaches that the purpose of the baffle board is to prevent particulates or droplets of the material to be vaporized from reaching the nozzle outlet. It would have been obvious to use the crucible of Mori to form organic EL layers because Spahn teaches that organic EL layers can successfully be formed by vacuum evaporation from a crucible of the type disclosed by Mori.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (JP 61-156809) taken in view taken in view of Mashita (JP 60-043480) and in further view of Witzman (6,202,591). Witzman (Fig. 2B) teaches that a fixing portion that extends

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downward can successfully support a baffle. It would have been prima facie obvious to provide the baffle plate of Spahn with a fixing portion that extends downward because Witzman teaches that a vapor coating process can be successfully performed by supporting a baffle in that manner.

Claims 1, 2, 5-12, 15-20, 22-26 and 34-37 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Morioka (JP 61-132589). Morioka (see Figs. 1-4) discloses a heating crucible for forming a deposition film in a vacuum deposition chamber. The crucible includes a jetting nozzle 4 defined in an upper wall of the crucible and an inner member 2. The inner member 2 includes a surface having an area facing the nozzle 4, and is suspended from an upper edge projection of the inner wall of the crucible. The inner member has one or more notched openings 5 that are formed in the surface having the area that faces the nozzle, and the edges of the openings are defined by the surface and an inner wall of the crucible. Also, the upper wall of the crucible is perpendicular to a transmission direction of vaporized coating material that passes through the notched openings. The claim 1 limitation of "which receives an organic compound" is a recitation of intended use of the claimed apparatus and the present apparatus claims are not limited to use with any one particular type of coating material. The apparatus of Morioka has an inherent capability of being used with an organic compound of the type recited in applicants' recitation of intended use.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morioka (JP 61-132589) in view of Tiedje (5,944,903) (see Fig. 6). It would have been obvious

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to one skilled in the art to provide the vaporizing crucible of Morioka with a temperature-sensing unit because Tiedje teaches that a vapor deposition process can desirably be more accurately controlled by measuring the crucible temperature.


Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morioka (JP 61-132589) in view of Spahn (6,237,529). Spahn discloses a method of producing an organic EL device by using a heating crucible having a nozzle 22 defined in an upper wall of the crucible and an inner member comprising a baffle board 30. Spahn teaches that the purpose of the baffle board is to prevent particulates or droplets of the material to be vaporized from reaching the nozzle outlet. It would have been obvious to use the crucible of Mori to form organic EL layers because Spahn teaches that organic EL layers can successfully be formed by vacuum evaporation from a crucible of the type disclosed by Morioka.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Richard Bueker  
Primary Examiner  
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